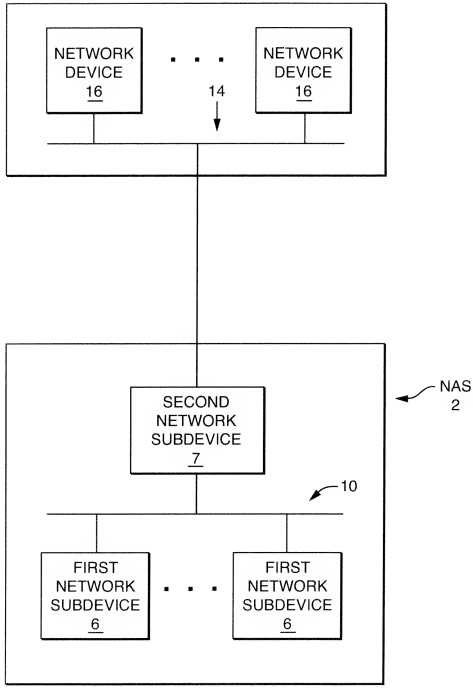
NETWORK DEVICE 16
NETWORK DEVICE 16
14
NAS 2
SECOND NETWORK SUBDEVICE 7
10
FIRST NETWORK SUBDEVICE 6
FIRST NETWORK SUBDEVICE 6

FIG. 1

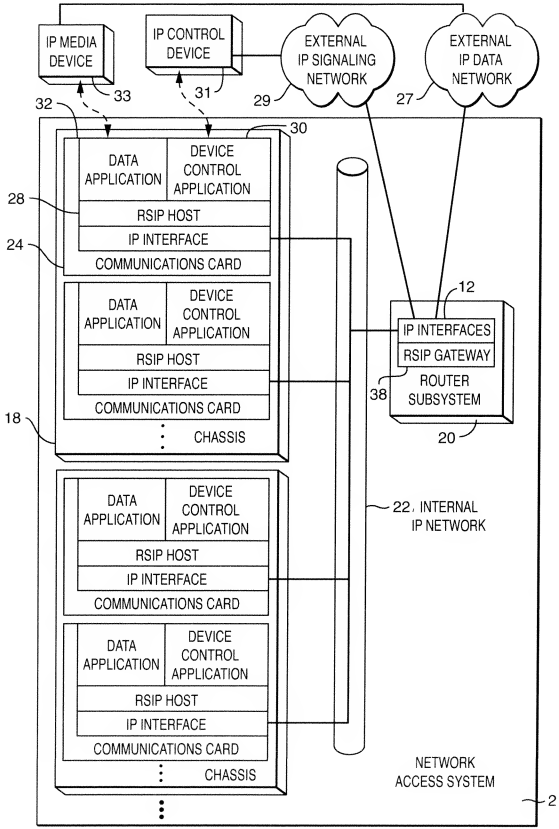
IP MEDIA DEVICE
IP CONTROL DEVICE
EXTERNAL IP SIGNALING NETWORK
EXTERNAL IP DATA NETWORK
33
31
29
27
32
30
DATA APPLICATION
DEVICE CONTROL APPLICATION
28
RSIP HOST
IP INTERFACE
24
COMMUNICATIONS CARD
12
IP INTERFACES
RSIP GATEWAY
38
ROUTER SUBSYSTEM
20
18
CHASSIS
22, INTERNAL IP NETWORK
NETWORK ACCESS SYSTEM
2

FIG. 2

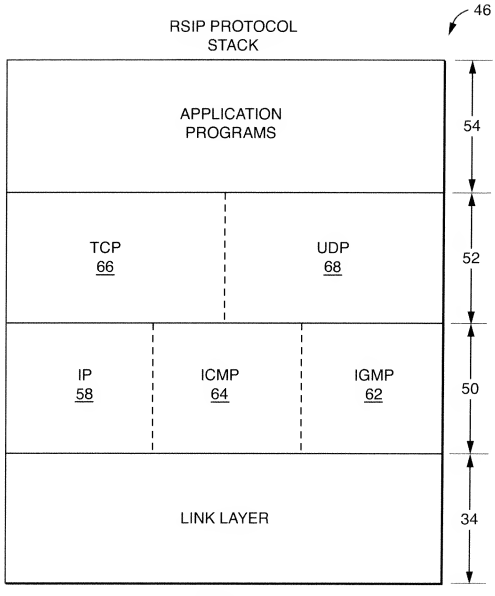
46
RSIP PROTOCOL STACK
APPLICATION PROGRAMS
54
TCP 66
UDP 68
52
IP 58
ICMP 64
IGMP 62
50
LINK LAYER
34

FIG. 3

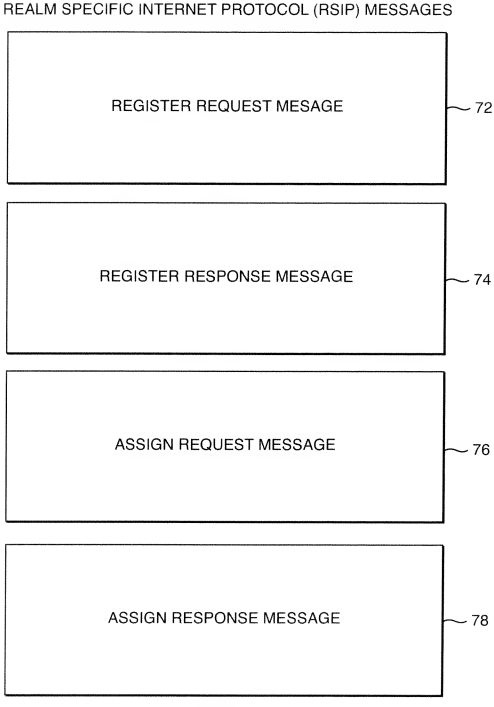
REALM SPECIFIC INTERNET PROTOCOL (RSIP) MESSAGES
REGISTER REQUEST MESAGE
72
REGISTER RESPONSE MESSAGE
74
ASSIGN REQUEST MESSAGE
76
ASSIGN RESPONSE MESSAGE
78

FIG. 4

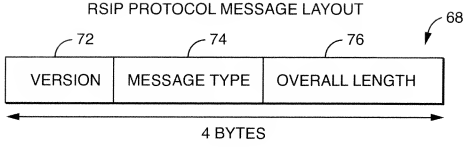
RSIP PROTOCOL MESSAGE LAYOUT
68
72
74
76
VERSION
MESSAGE TYPE
OVERALL LENGTH
4 BYTES

FIG. 5

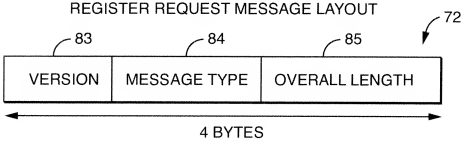
REGISTER REQUEST MESSAGE LAYOUT
72
83
84
85
VERSION
MESSAGE TYPE
OVERALL LENGTH
4 BYTES

FIG. 6

REGISTER RESPONSE MESSAGE LAYOUT

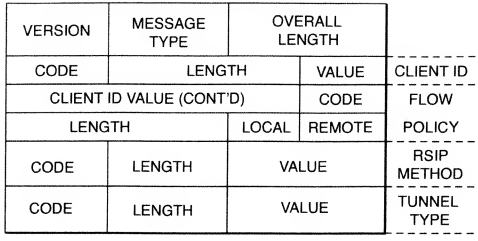

FIG. 7

ASSIGN REQUEST MESSAGE LAYOUT

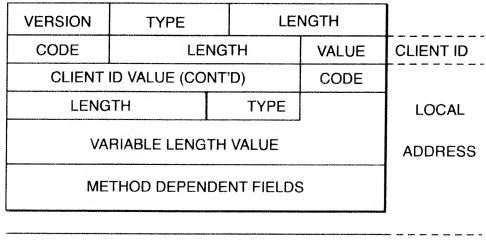

FIG. 8

RSA-IP ASSIGN REQUEST MESSAGE LAYOUT

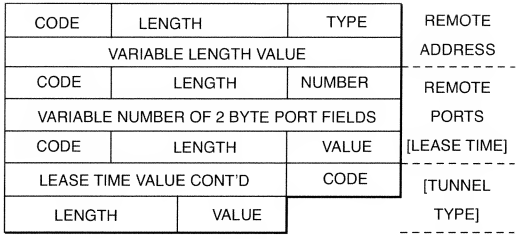

FIG. 9

RSAP-IP ASSIGN REQUEST MESSAGE LAYOUT

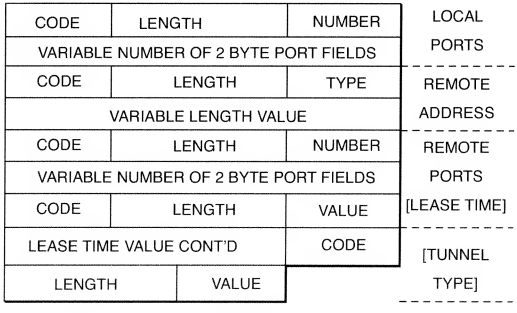

FIG. 10

ASSIGN RESPONSE MESSAGE LAYOUT

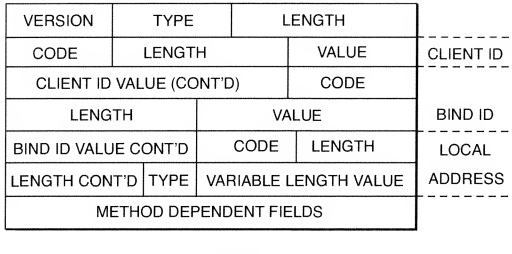

FIG. 11

RSA-IP ASSIGN RESPONSE MESSAGE LAYOUT

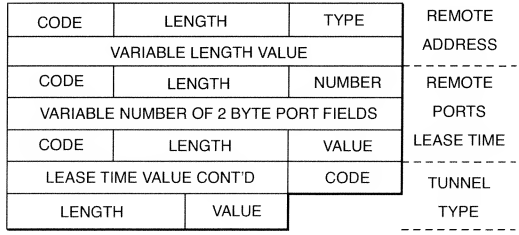

FIG. 12

RSAP-IP ASSIGN REQUEST MESSAGE LAYOUT

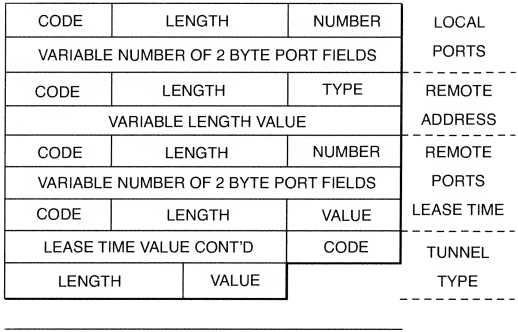

FIG. 13

112

44 COMBINATION NETWORK ADDRESS 42

EXTERNAL NETWORK ADDRESS (E.G., EXTERNAL IP ADDRESS)	LOCALLY UNIQUE PORT
198.10.20.30	1032

FIG. 14

122

126 128 130

INTERNAL NETWORK ADDRESS	LOWEST PORT	NUMBER OF PORTS
10.0.0.1	1026	32
10.0.0.3	1057	16

PORT-TO-INTERNAL-NETWORK ADDRESS TABLE

FIG. 15

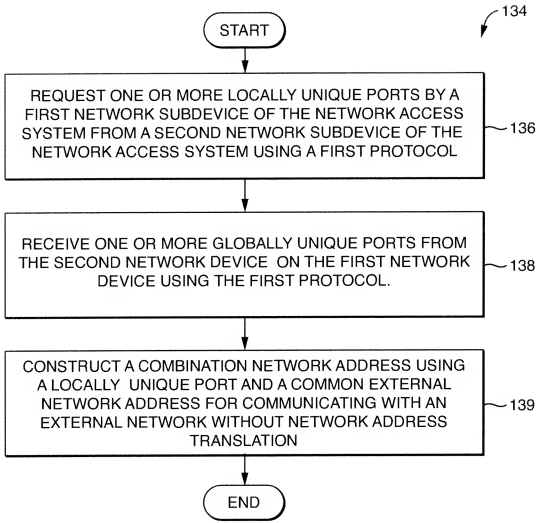
134
START
REQUEST ONE OR MORE LOCALLY UNIQUE PORTS BY A FIRST NETWORK SUBDEVICE OF THE NETWORK ACCESS SYSTEM FROM A SECOND NETWORK SUBDEVICE OF THE NETWORK ACCESS SYSTEM USING A FIRST PROTOCOL
136
RECEIVE ONE OR MORE GLOBALLY UNIQUE PORTS FROM THE SECOND NETWORK DEVICE ON THE FIRST NETWORK DEVICE USING THE FIRST PROTOCOL.
138
CONSTRUCT A COMBINATION NETWORK ADDRESS USING A LOCALLY UNIQUE PORT AND A COMMON EXTERNAL NETWORK ADDRESS FOR COMMUNICATING WITH AN EXTERNAL NETWORK WITHOUT NETWORK ADDRESS TRANSLATION
139
END

FIG. 16

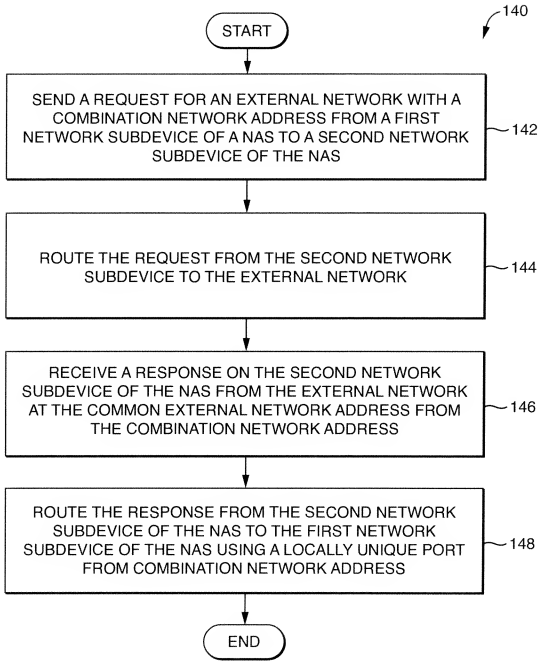
140
START
SEND A REQUEST FOR AN EXTERNAL NETWORK WITH A COMBINATION NETWORK ADDRESS FROM A FIRST NETWORK SUBDEVICE OF A NAS TO A SECOND NETWORK SUBDEVICE OF THE NAS
142
ROUTE THE REQUEST FROM THE SECOND NETWORK SUBDEVICE TO THE EXTERNAL NETWORK
144
RECEIVE A RESPONSE ON THE SECOND NETWORK SUBDEVICE OF THE NAS FROM THE EXTERNAL NETWORK AT THE COMMON EXTERNAL NETWORK ADDRESS FROM THE COMBINATION NETWORK ADDRESS
146
ROUTE THE RESPONSE FROM THE SECOND NETWORK SUBDEVICE OF THE NAS TO THE FIRST NETWORK SUBDEVICE OF THE NAS USING A LOCALLY UNIQUE PORT FROM COMBINATION NETWORK ADDRESS
148
END

FIG. 17